The Effect of Calretinin Immunostaining as Adjunctive to Hematoxylin and Eosin in Improving Diagnosis of Hirschsprung Disease

A Thesis

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The Doctorate degree in pediatric surgery

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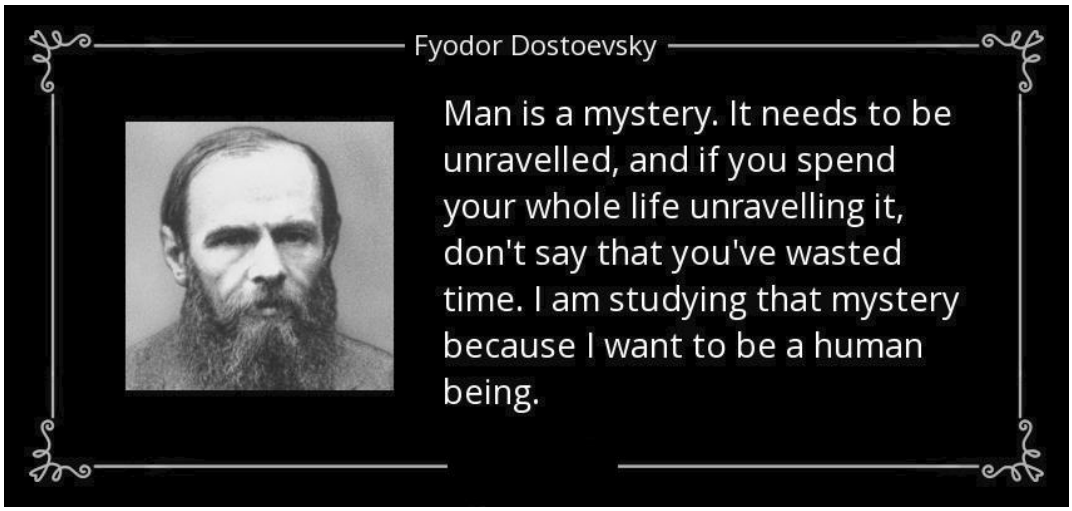
بسم الله الرحمن الرحيم
قَالوُاسُبحَانَك لاَعِلمَ لنَا إلا مَاعَلمتَناَ
إنكَ أَنتَ العَلِيمُ الحَكِيمُ
صدق الله العظيم
(سورة البقرة – الآية ٣٢)



The Crime and the Punishment (Fyodor Dostoevsky, 1880).

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Dedication

I dedicate this work to all my family **MY MOTHER, MY FATHER,** BROTHER AND SISTERS for their continuous support and guidance. And I should remain indebted to them all my life. I would like to thank my family my father for being with me supporting, my mother without her prayers and asking GOD nothing pass easily and finally the end is the best my little family

Maha Nagib my wife (being with me not an easy job) and my Yassin, Yara and Yasmeen for their unwavering and endless support to see my efforts come to fruition.

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List of Abbreviations

	Abbreviation	Full name
1.	HD	Hirschsprung's disease
2.	CR	Calretinin
3.	ENS	Enteric nervous system.
4.	NC	The neural crest
5.	NCCs	Neural crest cells
6.	FG	Foregut
7.	MG	Midgut
8.	HG	Hindgut
9.	SOX10	Sry- box 10
10.	EDNRB	Endothelin receptor b
11.	ENCCs	Enteric neural crest-derived cells
12.	GDNF	Glial cell-line-derived neurotrophic factor
13.	RET	Rearranged during transfection
14.	NTN	Neurturin
15.	ATM	Artemin
16.	PSP	Persephin
17.	GFR	Glycosylphosphatidylinositol-anchored binding component
18.	ECE1	Endothelin-converting enzyme 1
19.	ICC	Interstitial cells of cajal
20.	Kit	Receptor with tyrosine kinase activity
21.	LAPCs	Low-amplitude propagated contractions
22.	HAPCs	High-amplitude propagated contractions
23.	*AChE*	Acetylcholinesterase
24.	*EH*	Enzyme histochemistry
25.	H&E,	Hematoxylin and eosin
26.	*GFAP*	Glial fibrillary acidic protein
27.	*IHC*	Immunohistochemistry
28.	*IND*	Intestinal neuronal dysplasia;
29.	*LDH*	Lactate dehydrogenase
30.	*NSE*	Neuron-specific enolase
31.	*PAS*	Periodic acid–schiff;
32.	*PGP9.5*	Protein gene product 9.5
33.	*QL*	Qualitative
34.	*QT*	Quantitative
35.	SDH	Succinate dehydrogenase
36.	SMA	Smooth muscle α-actin
37.	TEM	Transmission electron microscopy

38.	SP	Substance p
39.	VIP	Vasoactive intestinal polypeptide
40.	TCA	Total colonic aganglionosis
41.	IASA	Internal anal sphincter achalasia
42.	SRB	Rectal suction biopsy
43.	GOTHI	General organization of teaching hospitals and institutes
44.	MOHP	Ministry of health and population
45.	PBS	Phosphate buffer saline
46.	DAB	Diamino-benzedine
47.	SPSS	Statistical package for social science

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